







# THE OPERATIVE TREATMENT OF HERNIA, WITH A REPORT OF TWO HUNDRED CASES.<sup>1</sup>

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THE profession at large is by no means agreed upon two very important points,—(1) As to what method or methods of operation for the radical cure of hernia are the best; (2) as to the permanent value of all methods of operation.

These are questions of vital interest both to the physician and surgeon, and any new evidence that may help to decide them should be welcomed.

The number of different operations that have been proposed during the past twenty years is very large, and yet, when we come to analyze them, most of them are founded upon a few main principles that date back almost to the time of Celsus.

We might suppose that the value of an operation so old could easily have been determined long ago. The question was settled in the early centuries of the Christian era, reopened in the Middle Ages, and again, in accord with the almost unanimous judgment of the masters in surgery, all operations were abandoned and forgotten.

With the discovery and application of the principles of antiseptics, surgeons were not slow to perceive that the question must be tested again, *de novo*, with the possibility that under new conditions the earlier verdict might be reversed. Since that time the operative treatment of hernia has been on trial, the leading sur-

<sup>1</sup> Read before the New York Surgical Society, January 23, 1895.



geons of the world have been its advocates, and the profession at large are quietly awaiting the decision.

It is not my purpose to review the whole subject of the "radical cure" of hernia, but rather to contribute a brief clinical report based upon personal experience in 200 cases operated upon during the past three and a half years.

These cases vary in age from five months to sixty-two years. A large majority of the cases (138) have been in children under fourteen years of age, and, as I have very recently read a paper on "Operative Treatment of Hernia in Children," before the College of Physicians of Philadelphia, I shall only refer to the results in children in a general way.

Analyzing the cases as a whole, we have—

12 cases of femoral hernia.

5 cases of umbilical hernia.

3 cases of ventral hernia.

180 cases of inguinal hernia (17 in females, 163 in males).

*Methods of Operation and Technique.*—(a) Ligature of the sac and suture of canal, without transplanting the cord, was employed in fifteen cases. The immediate and final results in these cases were as follows: In two cases the buried sutures were of simple non-chromicized catgut; of these, one relapsed in four months, the other is well three years after operation.

(b) In one case silk was used for the buried sutures, and although the case healed by primary union soon after leaving the hospital, two small sinuses appeared in the cicatrix, and refused to heal until the silk sutures had been extruded. Relapse occurred in this case in three months in spite of constant support of a truss. A second operation was performed for the recurrence, this time by Bassini's method, and although no truss has been worn since, the patient is now perfectly well, two years and six months later.

(c) *Chromicized Catgut.*—This was used in seven cases; of these, two are sound three and a half years after operation; one is sound three and a quarter years after operation; three others are sound two years and ten months after operation; one is sound two years and eleven months after operation.

(d) *Kangaroo Tendon*.—This was employed in four cases;<sup>1</sup> of these, one is sound two years and five months after ; a second, two years and six months after ; a third, eight months after ; and the fourth was not traced.

Bassini's method, with the substitution of kangaroo tendon for silk in the buried sutures, was employed in 160 of the remaining 165 cases of inguinal hernia.

Bassini's method with other than kangaroo tendon for suture material was employed in five other cases ; silk was used in two of them, and chromicized catgut in the other three. Suppuration, either early or late, occurred in four of these cases.

In one, my first Bassini operation in children, the suppuration was profuse and prolonged, all the sutures sloughing out. Relapse occurred within three months. Silk was used.

The second case, in which silk was used, although moderate suppuration occurred, none of the sutures were extruded, and the patient remains well three and a half years after operation.

Of the three cases in which chromicized catgut was used, one had slight superficial suppuration, and is well more than three years after operation ; a second is well three years after ; the third is a recent case, and although the wound healed by primary union, two small sinuses appeared at site of cicatrix some days after the patient was up and about the hospital.

No sutures came out, but the sinuses persisted for several weeks, and necessitated the patient's remaining in the hospital.

There are now remaining for consideration 160 cases of inguinal hernia not only operated upon by a single method, but in which the same technique in every detail was carried out. An analysis of a large series of cases operated upon under the same conditions furnishes much more satisfactory data for conclusions than when a number of methods have been employed.

*Primary Results*.—Of these 160 cases only one death has occurred (the only one in the entire series), due to a double pneumonia on the eighth day, without wound or abdominal complications, as proved by autopsy.

Suppuration occurred in but seven cases, giving 95.5 per

<sup>1</sup> When cord was not transplanted.



cent. of primary union. In all of these cases, with one exception, the suppuration was superficial and of little moment. Of the 138 cases in children, primary union occurred in 96 per cent. Slight temporary orchitis was observed in a few cases, particularly when the hernia had been of the congenital type and the testis had been subjected to more or less manipulation during the operation.

*Final Results.*—A truss has not been advised after operation except in two or three instances, where the patient was stout and had long been accustomed to a truss.

Of the 160 operations by the Bassini method, with kangaroo tendon for the buried sutures, not a *single* relapse has occurred, and all of the cases except six have been traced.

Two cases operated upon by Bassini's method have gone without relapse 3 to 2½ years.

10 . . . . .	2½ to 3 years.
18 . . . . .	2 to 2½ "
25 . . . . .	1½ to 2 "
21 . . . . .	1 to 1½ "

Making seventy-six more than one year. All but five were traced to final results. One case died one year after operation from another trouble, two other cases died of troubles not connected with the hernia, after leaving the hospital.

*Femoral Hernia.*—Of the twelve cases, all were operated upon by the method of high ligature of sac and suture of the crural canal either with chromicized catgut or kangaroo tendon. All of the cases healed by primary union. Seven of the cases were adults and five children. Two of the cases have not been traced, the remaining ten are at present sound without recurrence.

Of the five cases in children—

One is well	2 years and 10 months	after operation.
One " "	1 year	10 " " "
One " "	1 "	8 " " "
One " "	1 "	6 " " "
One " "	4 months	(a recent case) after operation.

Of the seven adults

One is sound	2 years and 4 months	after operation.
One is sound	1 year and 7 months	after operation.

Three were recent cases operated upon in October and November, 1894, and January, 1895. One was strangulated, and all are sound at the present time. None of the cases have worn a truss. Two cases have not been traced.

*Umbilical and Ventral.*—Eight cases, four of these occurred in children and four in adults. Of the children, one aged eight years is without relapse one year and six months after operation; one, a congenital "hernia of cord," the size of a goose-egg, operated upon in November, 1893, had a slight bulging within a few weeks after the operation, due to a bad cough and probable cutting through of sutures. The third case is at present, seven months after operation, perfectly sound; the fourth has not been traced. No support has been worn after operation except in the case with bulging. Of the four adult cases all were operated upon within the past seven months.

One case, a long-standing, irreducible, and frequently incarcerated ventral hernia in a woman, sixty-two years of age, is well seven months after operation. The hernia was situated midway between umbilicus and symphysis pubes and was about the size of the closed fist. A large mass of omentum, almost as hard as cartilage from frequent attacks of inflammation, was ligated with catgut and removed. The wound in this, as in all the other cases of umbilical and ventral hernia, healed perfectly by primary union without any complications.

The second case, an irreducible, adherent umbilical hernia (Case CXLVII) in a woman, aged thirty years, was operated upon August 2, 1894. She has had no relapse.<sup>1</sup>

The third case, adherent umbilical hernia in a woman, aged thirty-five years, was operated upon in October, 1894, and the fourth, a recurrent umbilical hernia, was operated upon in January, 1895.

In the adult case, all occurring in stout women with a large amount of adipose tissue, and poorly-developed abdominal muscles, an abdominal belt has been advised after operation.

The technique of the operation that has been employed is simply excision of redundant skin (including umbilicus) and sac;

<sup>1</sup> Since this paper was read, a slight relapse has been observed in this case.



suture of peritoneum, fascia, and skin in three layers, using kangaroo tendon for the buried sutures and silkworm gut for the skin.

*Wound Treatment.*—No drainage has been employed (except in two of the early cases); moist iodoform and bichloride gauze, covered with absorbent cotton, and held in place by a firm spica bandage, has been the uniform wound treatment. A plaster-of-Paris spica to produce fixation of the hip has been used in nearly all of the children, but it has been deemed unnecessary in adults. The first dressing is usually on the eighth day, and at the end of two to two and a half weeks the patient is allowed to be up and about ward, leaving hospital at the end of three weeks.

No case of atrophy of the testes or even functional trouble of any kind has been observed following the operation, and this fact proves that the chief theoretical objection urged against Bassini's operation is without foundation.

No injury was done the vas deferens in any case, and with a moderate amount of care this can be avoided.

*Strangulated Hernia.*—Looking at the cases from a pathological stand-point, seven were strangulated.

In view of the fact that strangulation in infants and young children is generally regarded as too rare for consideration, it is of interest to note that five of the cases were infants under two years of age. One was five months old, one seven and a half months, one eight months, one twelve months, one twenty-three months.

I have operated upon a sixth case, aged eight weeks, but, owing to the fact that the infant was in an almost moribund condition no attempt at radical cure was made. This case did not recover, and is the only fatality in eight cases of strangulation. Of the two adult cases one was femoral and the other a sigmoid,—*cæcal hernia*. In nine cases the cæcum and appendix, one or both, were found in the hernial sac. In two cases the appendix alone was found in the sac, adherent to the wall of the sac. The adhesions were separated and the appendix returned to the abdominal cavity. In one case (strangulated) the appendix was so dark in color that it was thought best to remove it. Whether the appendix, whenever found in a hernia, ought to be removed



is an open question. Many surgeons remove it on principle. Yet, if it is perfectly healthy, as is usually the case, I do not believe one is warranted in adding to the risk of the hernia operation itself the additional risk of removing the appendix, although it may be very slight.

In six cases the hernia was associated with Pott's disease of the spine, and in two with incontinence of urine. Primary union occurred in all of these.

*Summary of results* of the 200 cases taken as a whole: 12 femoral, no deaths, no relapses; 8 umbilical and ventral, no deaths, one slight relapse; 180 inguinal herniæ, one death, three relapses; 160 inguinal herniæ, Bassini's method, with kangaroo tendon for buried suture, not a single relapse. All the cases with the exception of ten have been *traced*. Of these, seven were inguinal, two femoral, one umbilical.

As to the question of the permanency of cure after operation, it is most important to know what period of time should elapse before we can speak of the probability of a permanent cure. To throw some light on this most important point, I have analyzed 250 cases of relapsed hernia, carefully recorded at the Hospital for Ruptured and Crippled.

This analysis shows that in 65 per cent. of these cases the relapse occurred during the first six months after operation, and in 85 per cent. during the first year, leaving but 15 per cent. that occurred after the first year. These figures were found to be almost exactly the same in the strangulated as the non-strangulated. From this we can conclude that, while relapse may occur (in some cases it did occur as late as twenty years) at any time after operation, if one year has elapsed without recurrence, the chances are very good that it will remain sound.

*As to choice of operation.* As most of the cases here reported were operated upon by Bassini's method, I am not in a position to speak from personal experience of the other methods of operation in vogue. I believe that with the substitution of an absorbable suture,—*e.g.*, kangaroo tendon for silk for the buried sutures,—the Bassini operation is the best of any of the operations that we know of at present. The results by this method in 160

cases without a single relapse are superior to Bassini's own results. I believe the choice of suture material of the greatest importance in any operation for hernia, and, as I have already stated in a recent paper on hernia in children, I believe that silk, silkworm gut, and silver wire should all be discarded. No matter how aseptic the suture or the field of operation, these sutures are foreign bodies, and if left as near the surface as they must be in a hernia operation, there is a tendency on the part of the tissues to throw them off, and not infrequently, after an apparent primary union, sinuses subsequently appear and fail to close until the sutures have been extruded. This is not a theoretical objection merely, but based upon actual experience derived from observation of a considerable number of such cases at the Hospital for Ruptured and Crippled during the past four and a half years. A glance at the records of a few of these cases may be of interest.

CASE I.—Male, aged fifty years. Operation December 20, 1893. Silk used for buried sutures. There remained an unhealed sinus the following March. Three silk sutures had come out at different times, and on opening up the sinus two more were removed by the surgeon. Relapse occurred four months after operation.

CASE II.—Male, aged thirty-nine years. Operation May 15, 1891. Silkworm gut used for buried sutures. Sinus followed, and was two months in healing, several sutures having come out in the mean time. Relapse in this case occurred in a few months.

CASE III.—Male, aged twenty-seven years. Reducible inguinal hernia. Modified Macewen operation, silver wire being used for the buried sutures. The patient was seven weeks in the hospital, and two months later there remained an unhealed sinus discharging pus. The sinus had to be opened up and the offending sutures removed before healing took place. Relapse occurred a few months later.

A fourth case was even worse than any that have been mentioned. In this case the sinuses remained for nearly a year, during which time the patient was practically an invalid. Others could be narrated, but these are sufficient to prove the force of the objection. They were all operated upon by the best surgeons of this city, men whose reputation for careful aseptic work is a sufficient guarantee that the results were not due to faulty technique.



Most surgeons at the present time admit that perfect *primary union* is one of the most important factors in securing lasting results. Granting this, it follows that all forms of buried sutures that seriously interfere with primary union ought to be given up unless they possess some greater advantages to offset the objections that have been urged against them.

I know that many will say that silk, silkworm gut, and silver wire can all be buried without causing further trouble. I admit this to be true in a certain and, perhaps, the larger proportion of cases, but that they do cause trouble in a considerable number of cases is a fact beyond dispute. We have only to compare the results of men who use these sutures with those who use an absorbable suture to be convinced.

Sir William MacCormac, in his Bradshaw lecture of 1893, has analyzed the cases of the leading surgeons as to the proportion of cases followed by "immediate healing of the wound."

In Billroth's cases (silk used) there was primary union in 39 per cent.

In Schede's cases (silver wire) there was primary union in 35 per cent.

In Macewen cases (chromicized catgut) there was primary union in 86.7 per cent.

In Halsted's cases (silk) there was primary union in 82 per cent.

At the Johns Hopkins Hospital, where the refinements of aseptic technique probably equal or surpass anything that can be found in the hospitals of this country, at least, Dr. Halsted states they have given up the use of silk for the very reasons I have mentioned. It is true, silver wire has been substituted for silk, which is open to the same objections.

The tendon suture has been shown by actual experiment (Ballance and Edmunds's *Ligature of Arteries in Continuity*) to be capable of absorption in about three months, or almost exactly the time required for perfect tendinous union.

Whether the transplanting of the cord is to be regarded as essential to the highest degree of success in hernia operations it is hardly possible to state positively. It may be that the high



ligation of the sac, and the perfect closure of the canal, made possible by slitting up aponeurosis, has quite as much to do with the good results as transplanting the cord. My own cases, operated upon by this method without transplanting the cord, but using the same sutures, kangaroo tendon and chromicized catgut, have none of them relapsed, and some have gone more than three years. One was a very large double hernia (the size of an orange) operated upon in April, 1892. The boy is perfectly sound at present, nearly three years later; and another very large strangulated sigmoid hernia is well, three and a quarter years after operation. It is true, the number of cases operated upon by this method is too small to compare them with the cases operated upon by Bassini's method, or to draw absolute conclusions.

In comparing Bassini's method with Halsted's, which resembles it in the main, features,—viz., high ligation of the sac and transplantation of the cord,—there remain two important points of difference.

In the Halsted operation nearly all of the veins are ligated. That this is unnecessary, except when the veins are in a varicose condition, the results of Bassini and others prove. The other point of difference is placing the cord external to the aponeurosis of the external oblique, covered by skin only instead of beneath the aponeurosis. It is easy to point one objection to having the cord so superficial, but waiving objections, some advantages in having the cord thus placed should be brought forward. Such advantages have not been made clear.

On the other hand, when the wound has been closed by the Bassini method, the only weak point where the hernia is liable to recur is at the new internal ring or place where the cord emerges. The same weak place exists in the Halsted operation as well. In the Bassini, if a protrusion should begin, its further progress is resisted by the strong aponeurosis of the external oblique, through which it must force its way, or take a right-angled course, a distance of about two inches, until it reaches the external ring.

In Halsted's operation, when once it has started, it has only

the skin and superficial fascia to oppose it, and we know how readily these yield. The results of the operation, immediate and final, are inferior to Bassini's, and until superior results shall have been demonstrated, I believe we should continue to operate by Bassini's method. The technique is simpler, and after a little experience the operation can be performed in from fifteen to twenty minutes.

*Choice of Cases.*—Three years ago many surgeons doubted the wisdom of operating upon hernia in children, and, in fact, that was the opinion held at the Hospital for Ruptured and Crippled. Of eighteen cases operated upon then, in 1889 and 1890, by the Czerny and Socin method, with catgut for the buried sutures, ten relapsed, and eight of these relapses occurred within the first six months after operation. The almost perfect results obtained from Bassini's method during the past three years added to the brilliant results of Felitzet, in France, who has operated upon 105 cases, with one death and but two relapses, are sufficient evidence to prove that the period of childhood is the most favorable of all for success.

As most cases of hernia in children can be cured by mechanical treatment, operation has been advised only in cases where prolonged use of the truss has been without benefit, or in cases not satisfactorily held by a truss,—*e.g.*, cases associated with reducible hydrocele, adherent omentum, or adherent appendix. The 136 cases of children operated upon have been selected from upward of 4000 cases. Operation has been seldom advised if the patient is over fifty, unless there are strong reasons for so doing. In cases of femoral hernia operation has been advised almost at once, since cure seldom follows mechanical treatment, and the results of operative treatment are even better than in inguinal hernia. Bassini's recent statistics show fifty-four cases of femoral hernia without a single death and no relapse, in forty-one cases traced from one to nine years after operation.<sup>1</sup>

In regard to very large ventral and umbilical herniæ, occurring as they usually do in stout women, with a very thick layer of subcutaneous fat, and a correspondingly thin layer of healthy

<sup>1</sup> Archiv für klin. Chirurg., 1894.



muscular tissue, we cannot hope for the same success as in inguinal and femoral hernia. These cases are usually irreducible and very adherent, and the operation cannot but be attended with considerable risk. The indication for operation in this class of cases I believe to be, first, frequent attacks of severe pain with symptoms of threatened incarceration. In such cases the operation is attended with less risk than the risk of delay, with the probability of operation for strangulation later on. Second, age; women under forty, in good health, with hernia of moderate size, should be operated upon. If these cases are allowed to go on, in a few years the operation becomes more and more dangerous, while the chances of success are correspondingly diminished. Only a word need be said of umbilical hernia in infancy and childhood. The very large proportion are cured by mechanical support. The few that fail to be cured by this treatment can be very easily and successfully treated by operation.

#### DETAILS OF INDIVIDUAL CASES.

Nos. 1 and 2.—W. H. S., aged twenty-nine years, laborer. Double oblique inguinal hernia of several years' duration, not satisfactorily controlled by truss. Operated upon September 5, 1891. Bassini's operation on the right side and Czerny's on the left. Chromicized catgut was used for buried sutures. Primary union on the left side, slight suppuration on the right. Drainage-tube used on the right side. Final result, perfectly sound February 15, 1895. Has worn light truss since operation.

Nos. 3 and 4.—I. W., aged twenty-four years. Double oblique inguinal hernia not controlled by a truss. Operation August 25, 1891. Bassini's operation left side, Ball's operation right. Chromicized catgut used for buried sutures. Slight suppuration on left side, primary union on the right. Five weeks in hospital. No relapse January, 1895. Has worn light truss since operation. Chromicized cat-gut used.

No. 5.—G. C., aged twenty-five years. Left oblique inguinal hernia, strangulated thirty-six hours. Operation October 22, 1891. Sac was found to contain a loop of the sigmoid flexure, together with a large mass of omentum. The bowel was greatly congested and of dark color, but on relieving the constriction and applying warm



towels, it sufficiently regained color to permit its return to the abdominal cavity. The omentum was not ligated. Wound healed by primary union, and the patient left the hospital at the end of three weeks. Final result, January 22, 1895, perfectly well.

No. 6.—R. H., aged forty-five years. Right femoral hernia, irreducible for five years. Operation December, 1891. A mass of omentum was removed, and the sac ligated high up. The crural opening was closed with a purse-string suture of chromicized catgut. The wound healed by primary union. Final result not traced.

No. 7.—F. R., male, aged twenty years. Left oblique inguinal hernia incarcerated. Operation March 7, 1892. A large mass of omentum was removed. Catgut ligatures. The pillars of the canal were closed with chromicized catgut interrupted sutures. The wound healed by primary union. Patient left the hospital at the end of two and a half weeks. Perfectly sound October, 1894.

No. 8.—J. W., male, aged twenty-five years. Right oblique inguinal hernia, reducible. Operation March 15, 1892. Bassini's operation; kangaroo-tendon sutures were used in both deep and aponeurotic layers, the skin was closed with catgut. Primary union. Two and a half weeks in hospital. Final result not traced.

No. 9.—H. K., female, aged forty years. Right femoral, irreducible, hernia. Operation March, 1892. Omentum ligated, crural canal closed. Purse-string suture, kangaroo tendon. Primary union. Final result not traced.

No. 10.—W. W., male, aged twenty-four years. Right oblique inguinal hernia, reducible. Operation April 31, 1892. Bassini's operation; kangaroo tendon. Primary union; three weeks in hospital. Final result not traced.

No. 11.—M. B., male, aged twenty-six years. Right oblique inguinal hernia, reducible. Bassini's operation April 29, 1892. Kangaroo tendon, no drainage. Primary union; fifteen days in hospital. Final result, no truss since operation. Occupation requires very heavy lifting. Perfectly sound January 18, 1895.

No. 12.—W. M., male, aged twenty-one years. Right oblique inguinal hernia. Operation August 2, 1892. Bassini's operation; kangaroo tendon, no drainage. Primary union. Final result, sound January 2, 1895.

No. 13.—J. M., male, aged twenty-two. Operation September 3, 1892. Right oblique inguinal, irreducible, cæcal. Pillars of canal sutured with kangaroo tendon, cord not transplanted. Primary union;

three weeks in hospital. Light truss temporarily. Final result, perfect January, 1895.

No. 14.—M. H., female, aged nineteen years. Left femoral. Operation October, 1892. Purse-string suture of canal, high ligation of sac, no drainage. Primary union; two weeks in hospital. No relapse January 5, 1895.

No. 15.—H. O., male, aged eight years. Right oblique inguinal hernia, congenital, size of a hen's egg, irreducible for one week. Czerny's operation December 12, 1891. Small bit of omentum was found in the sac, hydrocele of the cord present. Catgut sutures (non-chromicized) used in closing pillars of ring. Primary union. Three weeks in hospital. Final result, relapsed four months after operation.

No. 16.—C. R., male, aged thirteen years. Right oblique inguinal hernia; three years' duration; size of a fist. Not controlled by truss. Operation December 28, 1891. Bassini's operation, with deep sutures of silk; no drainage; profuse suppuration, during course of which deep sutures came out. Final result, relapse three months after operation.

No. 17.—D. M., male, aged sixteen years. Left oblique inguinal hernia, congenital; not well controlled by truss. Operation January 25, 1892. Czerny's operation; catgut sutures; no drainage. Primary union. Three weeks in hospital. The hernia was complicated with hydrocele of the cord. Final result, perfectly sound December, 1894.

Nos. 18 and 19.—V. S., male, aged nine years. Right oblique inguinal hernia, four years' duration. Treatment with truss carefully tried during entire time without improvement. Hernia the size of an egg. Operation January, 1892. Czerny's operation, silk ligatures. Primary union. Soon after leaving the hospital a small sinus appeared from which subsequently one of the silk ligatures was discharged. The hernia relapsed three months after operation, although a truss had been worn the entire time. A second operation was performed in July, 1892, this time Bassini's. Kangaroo tendon was used for the buried sutures as well as for the aponeurosis. Primary union followed, and no truss has been worn since operation. Final result, perfectly sound January 22, 1895.

No. 20.—J. B., male, aged thirteen years. Left oblique inguinal hernia of eleven years' duration, truss treatment two years without improvement. Operation March 15, 1892. Czerny's operation; with chromicized catgut buried sutures; no drainage. Primary union.



Three weeks in hospital. Light truss worn a short time after operation, then discarded. Final result, January 2, 1895, perfectly sound, not wearing truss.

No. 21.—F. H., male, aged ten years. Left oblique inguinal hernia, congenital, complicated with hydrocele of the cord. Czerny's operation; chromicized catgut; buried sutures; no drainage. Three weeks in the hospital. Primary union. January 2, 1895, perfectly sound; no truss.

No. 22.—J. P., male, aged seven years. Right oblique inguinal hernia of three years' duration, not controlled by truss. Bassini's operation March 30, 1892. Chromicized catgut for deep sutures as well as aponeurosis; skin closed with fine catgut; no drainage. Primary union. Two and one-half weeks in hospital. A small portion of irreducible omentum was found in sac, ligated with catgut, and excised; truss worn a short time after operation. Final result, February 27, 1894, perfectly sound.

Nos. 23 and 24.—T. H., male, aged seven and one-half years. Double oblique inguinal hernia, four years' duration, very large, and not controlled by truss. Hernia on the left side the size of an orange, and on the right size of an egg. Both sides operated upon April 8, 1892. Czerny's operation; chromicized catgut; buried sutures; no drainage. Three weeks in hospital. Perfect primary union on both sides. Truss worn for a few months after operation. Final result, October 3, 1894, perfectly sound.

Nos. 25 and 26.—G. M., male, aged seven years. Right femoral hernia and left oblique inguinal. The hernia on the left side had existed three years, and was supposed to have been cured by a truss, but relapsed. The right femoral hernia was of six months' duration. Both sides were operated upon April 28, 1892. In the femoral hernia, the sac was excised high up and the crural opening closed by buried purse-string sutures of kangaroo tendon, the skin wound being closed by catgut. The inguinal hernia was operated upon by high ligation of sac and suture of canal without transplanting cord, using the buried sutures of kangaroo tendon for the pillars of the ring. Primary union was obtained on both sides, and the patient left hospital at the end of three weeks. Final result, no relapse January 22, 1895.

No. 27.—F. H., male, aged thirteen years. Right oblique inguinal hernia, eleven years' duration. Truss had been worn for seven years without improvement. The hernia was the size of a hen's egg, and



not easily controlled by a truss. Operation May 5, 1892. Bassini's method. The sac was very large and easily admitted two fingers. Kangaroo tendon was used for both deep and aponeurotic layers of sutures, skin being closed as usual with catgut, no drainage. Patient remained in bed two and a half weeks, perfect primary union followed. Final result, January 22, 1895, perfectly firm; no truss.

No. 28.—J. U., male, aged seven and a half years. Right oblique inguinal hernia of several years' duration, complications, adherent omentum. Operation June 5 1892; Bassini's method. The omentum was ligated with catgut; kangaroo tendon used for buried sutures; skin closed with catgut; primary union two and a half weeks. Final result, October 3, 1894, no relapse.

No. 29.—I. S., male, aged four and a half years. Right oblique inguinal hernia, congenital. Operation June, 1892; Bassini's method. Kangaroo tendon for buried sutures; two and a half weeks in bed; perfect primary union. Final result, October 3, 1894, perfectly sound.

No. 30.—J. F., male, aged eight months, Right oblique inguinal hernia, strangulated. The hernia had existed but one week, and had been strangulated for twenty-four hours when seen. Taxis under chloroform failed to reduce the hernia. The condition of the child was desperate, and an operation was at once performed. The hernia having been reduced, the wound was closed by the Czerny method, using kangaroo tendon for the buried sutures. Patient remained in the hospital one week; perfect primary union followed. Final result, January 22, 1895, perfectly sound, not wearing truss.

No. 31.—D. B., male, aged fourteen years. Left oblique inguinal hernia, congenital, the size of an egg, not controlled by truss. Operation July 20, 1892; Bassini's method. The lower part of the sac was sutured over the testicle with fine catgut, kangaroo tendon was used for buried sutures. Perfect primary union; three weeks in hospital; no truss worn after operation. Final result, February 27, 1894, perfectly firm; no truss.

No. 32.—T. C., male, aged ten years. Right oblique inguinal hernia, congenital and complicated with a very large reducible hydrocele, the size of a fist. Truss was worn, but, on account of the fluid, the hernia was perfectly uncontrollable. Operation July 6, 1892; Bassini's method. The lower end of sac was sutured with fine catgut over testis, and the wound closed in the usual way, buried sutures of kangaroo tendon. Patient remained in bed two weeks; perfect primary union. Final result, October 10, 1894, perfect; no truss.

No. 33.—W. M., male, aged fourteen years. Left oblique inguinal hernia, one year's duration, not controlled by truss. Operation August 23, 1892. Bassini's method; kangaroo tendon for buried sutures, no drainage. Patient remained in bed two weeks; wound healed by perfect primary union. Final result, January 22, 1895, perfectly sound; no truss.

No. 34.—M. F., male, aged twelve years. Left oblique inguinal hernia, congenital. Truss had been worn two years without improvement. Operation August 23, 1892. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. Patient remained in bed two and a half weeks. Perfect primary union. Truss was worn for a few months after operation, then discarded. Final result, February, 1894, perfectly firm; no truss.

No. 35.—W. S., male, aged four years. Large left oblique inguinal hernia, *cæcal*. The hernia was of the congenital variety and the size of a fist; a truss had been worn since the child was a few months old, but the hernia could never be properly controlled. Operation September 13, 1893. The incision was made exactly as in the Bassini operation, the sac ligated high up, the deep parts of the canal closed with buried sutures of kangaroo tendon, with separate sutures of the same material for the aponeurosis. The skin layer was closed with interrupted catgut sutures. The operation was precisely the same as the Bassini, except that the cord was not transplanted. Wound healed by primary union. Patient left the hospital at the end of three weeks. Final result not traced.

No. 36.—J. F., male, aged eleven years. Right oblique inguinal hernia of several years' duration, and not controlled by truss. Operation September 9, 1892. Bassini's method; buried sutures of kangaroo, skin sutures catgut. Duration of treatment two and a half weeks in bed; primary union. Final result, February 27, 1894, perfectly sound; no truss.

No. 37.—P. D., male, aged nine and half years. Right oblique inguinal hernia of several years' duration. Truss treatment tried, but not effective. Bassini's operation October 5, 1892. Kangaroo tendon for buried sutures; perfect primary union; two and a half weeks in bed. Final result, October 20, 1894, perfectly sound; no truss.

No. 38.—F. B., male, aged fourteen years. Left oblique inguinal hernia, congenital. The hernia was supposed to have been cured by a truss, in early childhood, but afterwards relapsed. Operation October 29, 1892. Bassini's method; kangaroo tendon for



buried sutures; no drainage; two and a half weeks in bed; perfect primary union. Final result, January 23, 1894, perfectly sound; no truss.

No. 39.—E. W., male, aged twelve years. Left oblique inguinal hernia the size of an orange, not controlled by truss. Bassini's operation November 1, 1892; kangaroo tendon for buried sutures, catgut for the skin; no drainage; primary union; two and a half weeks in bed. Final result, January 22, 1895, perfectly sound; no truss.

No. 40.—I. N. F., female, aged three and a half years. Congenital hernia of umbilical cord. The hernia was the size of a large goose-egg, and was frequently difficult to reduce, and caused much pain. It was present at birth or before the "fall of the cord," and had all the characteristics of a true congenital umbilical hernia, coming in the class designated by Macready as "hernia of the root of the cord," where the abdominal opening is of moderate size. The opening easily admitted two and nearly three fingers. Operation November, 1893 (private). The skin and sac formed one and the same layer over a part of the tumor, and this layer was so thin as to be almost transparent. The redundant portions of the sac and skin were removed, and the wound closed in separate layers, using kangaroo tendon for the buried sutures. The patient developed a severe bronchitis after the ether, and, although the wound healed by perfect primary union, a slight bulging appeared about three weeks later. This has not increased since, though she wears a slight support.

I have seen but one other case of "congenital umbilical hernia" or "hernia of the cord," and that in an infant three months old. It was about the size of a quart measure at birth, and no hope of living was given by the physicians. By careful bandaging it is now alive and well, six months old, and the hernia is steadily diminishing in size. It is still about the size of the closed fist. Curiously, it is associated with very large double inguinal hernia, both of which are very difficult to control.

No. 41.—J. G., male, aged four years. Right oblique inguinal hernia, congenital, not controlled by truss. Bassini's method. Kangaroo tendon for buried sutures, catgut for the skin. The lower portion of the sac was sutured over testes with fine catgut; no drainage. Patient was in bed two and a half weeks; perfect primary union. Final result, February 21, 1894, perfectly sound.



No. 42.—C. M., male, aged eleven years. Right oblique inguinal hernia, not satisfactorily controlled by truss. Operation November 29, 1892. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. Two and a half weeks in bed; perfect primary union. The truss was worn a few months after operation, and then discarded. Final result, December 15, 1894, perfectly sound.

Nos. 43 and 44.—T. H., male, aged four years. Double oblique inguinal hernia, complicated with spinal disease and incontinence of urine. The hernia on the right side was very large, the size of an orange, of the *cæcal* variety, and congenital. A truss had been worn, but the hernia could not be controlled, particularly on account of the plaster-of-Paris jacket, which the patient was obliged to wear for his spinal trouble. The first operation for the right side was performed January 12, 1893. Bassini's method; kangaroo tendon for the buried sutures. The sac, which was large, was sutured high up instead of being ligated. Perfect primary union followed, notwithstanding the fact that the dressing was constantly saturated with urine. Final result, January 2, 1895, perfectly sound; no truss.

The left side was operated upon January 9, 1894, by the Bassini method. The kangaroo tendon was used as usual for the buried sutures. Perfect primary union was obtained; the patient remained in bed three weeks. No drainage was employed in either case. No truss was worn after operation. Final result, January 2, 1895, perfectly sound; no truss.

No. 45.—J. Z., male, aged six years. Left oblique inguinal hernia, size of an egg, complicated with small reducible hydrocele, which prevented successful treatment with truss. Operation January 20, 1893. Bassini's method; kangaroo tendon was employed for the buried sutures and catgut for the skin. Perfect primary union; no drainage. Final result, January 22, 1895, perfectly sound.

No. 46.—C. G., female, aged twenty-one years. Left oblique inguinal hernia, not well controlled by truss. Operation November 4, 1892. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin; primary union; two and a half weeks in bed. Final result, died one year later without relapse.

No. 47.—M. C., female, aged twenty-six years. Right oblique inguinal hernia. Operation December 22, 1892. Bassini's method. Kangaroo tendon for buried sutures, catgut for skin; no drainage; primary union; three weeks in hospital. Final result not traced.

No. 48.—A. C., male, aged thirty-five years; laborer. Right oblique inguinal hernia, relapsed after McBurney's operation, done two years before. Bassini's operation January, 1893. The large amount of cicatricial tissue, resulting from the previous operation, made it impossible to perform a perfectly satisfactory closure. Kangaroo tendon was used for buried sutures, catgut for the skin; no drainage; three weeks in hospital; light truss was worn after operation. Final result not traced.

No. 49.—G. B., male, aged twenty-one years. Right inguinal hernia of several years' duration. He had worn a truss without benefit. Operation January 20, 1893. Bassini's method; kangaroo tendon for buried sutures, catgut for skin; no drainage; perfect primary union followed. Final result, January 20, 1895, no relapse.

No. 50.—G. R., male, aged eight years. Left oblique inguinal hernia complicated with undescended testis. The hernia had been observed for four years. Truss had been tried, but was painful. Operation January 18, 1893; Bassini's method. Testis was anchored in the scrotum by means of catgut sutures attached to a wire frame. Kangaroo tendon was used for the buried sutures as usual. Primary union followed. Final result, December, 1894, perfectly sound. Testis found just outside of external ring.

No. 51.—J. D., male, aged nine years. Left oblique inguinal hernia of four years' duration. Hernia was the size of an egg, and mechanical treatment had been carefully tried without improvement. Operation January, 1893. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin; no drainage. Patient was kept in bed two and a half weeks; perfect primary union. A truss was worn for six months and then discarded. Final result, November 17, 1894, perfectly sound.

No. 52.—E. G., male, aged fourteen years. Left oblique inguinal hernia size of an egg, of three years' duration. Mechanical treatment tried without improvement. Operation February, 1893. Bassini's method; kangaroo tendon for buried sutures, catgut for skin. Duration of treatment two and a half weeks in bed. Perfect primary union. Truss was worn for a few months after operation, then left off. Final result, December 15, 1894, perfectly sound.

No. 53.—A. D., male, aged twelve months. Left oblique inguinal hernia, congenital, strangulated for twenty-six hours. Operation February, 1893. When the patient entered the hospital he was in a condition bordering on collapse, and after a brief but unsuccessful



attempt at reduction by taxis, operation was immediately performed under chloroform anæsthesia. The cæcum and appendix, very much congested, were found in the sac. On relieving the constriction, the bowel regained its normal color, and was returned to the abdominal cavity. The canal was closed by the Bassini method without drainage; kangaroo tendon being used for the buried sutures and catgut for the skin. Complications: the patient had a very high temperature of  $107^{\circ}$  F. on the day following the operation, and was in a moribund condition during the entire day. He was treated for four days with tub-baths of a temperature of  $95^{\circ}$  F., and repeated as often as the temperature rose above  $103^{\circ}$  F. On the fifth day the temperature fell to normal, and convalescence from this time on was uninterrupted. Final result, July, 1894, perfectly sound, having worn no truss since operation.

No. 54.—F. K., male, aged seven years. Left oblique inguinal hernia of several years' duration. Mechanical treatment not effective. Operation February, 1893. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. Perfect primary union. Patient remained in bed two and a half weeks. Final result, February 27, 1894, perfectly sound, not wearing truss.

No. 55.—F. S., male, aged fourteen years. Right oblique inguinal hernia, congenital, and complicated with an undescended testis. The testis could be brought down to the external ring, and also be pushed upward into the abdominal cavity. Truss treatment had been tried, but the wearing of any support was painful. Operation March 10, 1893; Bassini's method. The epididymis was partially dissected from the rest of the testis, making it possible to bring the testis farther down into the scrotum, where it was anchored by means of catgut sutures to a wire frame outside of the scrotum. The canal was closed in the usual way, with kangaroo tendon for the buried sutures and catgut for the skin. Perfect primary union followed with but little orchitis. Final result, September 29, 1894, perfectly sound. Testis very much atrophied and retracted to external ring.

No. 56.—M. T., female, aged ten years. Right oblique inguinal hernia of ten years' duration. A truss had been worn the entire time without improvement. Operation March 10, 1893. Bassini's method; canal being closed in the usual way with kangaroo tendon, catgut being used for the skin. Patient remained in bed two and a half weeks. Primary union followed without complications. Final result, February, 1894, perfectly sound.



No. 57.—J. D., male, aged thirty-two years. Right oblique inguinal hernia of several years' duration. Mechanical treatment unsatisfactory. Operation March 3, 1893. Bassini's method; canal closed in usual way with kangaroo tendon for buried sutures and catgut for skin. During the first week after operation the patient contracted facial erysipelas, and had a severe attack, making it necessary for him to be transferred to another hospital in a different part of the city. In spite of this complication the wound healed by primary union. Final result, July, 1894, perfectly sound.

No. 58.—F. G., male, aged ten years. Right oblique inguinal hernia, *cæcal*. The patient had had the hernia since infancy, and it could not be controlled with a truss. The hernia was reducible with the exception of a small portion which was diagnosed as an adherent vermiform appendix. It proved to be such, was four inches in length, and adherent to the sac throughout its entire length. The adhesions, which were old and very firm, were carefully separated as far as the base, the appendix was not removed but reduced into the abdominal cavity, and the sac, which was very voluminous, was closed by catgut sutures. Perfect primary union followed without complications. Final result, December 13, 1894, perfectly sound. No truss worn after operation.

No. 59.—R. Z., female, aged fourteen years. Right femoral hernia of several years' duration. Truss treatment not effective. Operation April 4, 1893. The sac was ligated high up and the purse-string suture of kangaroo tendon was used in closing the crural canal. Perfect primary union followed. The patient was allowed to be up at the end of two and a half weeks. Final result, December 10, 1894, perfectly sound.

Nos. 60 and 61.—A. M., male, aged twelve years. Double oblique inguinal hernia, both sides having relapsed after a Czerny operation, done February 14, 1890, at the Hospital for Ruptured and Crippled. The relapse occurred a few months after the operation, in spite of the fact that a truss had been worn the entire time. In the Czerny operation catgut sutures were used to close the canal. Operation April 11, 1893. Bassini's method; kangaroo tendon was used for the buried sutures, and catgut for the skin. Both sides were operated upon the same day. Perfect primary union followed, and no truss was worn after the operation. Final result: patient was seen October 6, 1894, and both sides were perfectly sound, and not the slightest impulse could be seen on coughing. No relapse January 1, 1895.

No. 62.—V. S., male, aged thirteen years. Right oblique inguinal hernia, congenital, and complicated with the undescended testis. A truss had been worn for some time, but caused considerable pain. Operation February, 1893; Bassini's method. The testis was brought down into the scrotum as far as possible and sutured and anchored by catgut sutures. The wound was closed in the usual way, with kangaroo tendon for the buried sutures and catgut for the skin. Final result, December 15, 1894, perfectly sound. Testis now just outside of external ring.

No. 63.—F. A., male, aged five years. Right oblique inguinal hernia, congenital, very large, and not controlled by truss. Operation April 4, 1893. Bassini's method; kangaroo tendon for buried sutures and catgut for the skin. No drainage. Primary union. Final result, February, 1894, perfectly sound.

No. 64.—F. G., male, aged fifty-one years. Right oblique inguinal hernia of ten years' duration. Mechanical treatment not effective. Operation April 10, 1893. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. No drainage. Perfect primary union. Two and a half weeks in bed; three weeks in hospital. Final result, January, 1895, perfectly sound.

No. 65.—G. R., male, aged twenty-one years. Left oblique inguinal hernia of two years' duration, size of an egg. A truss had been worn, but was very painful. Operation May 5, 1893. Bassini's method; kangaroo tendon used for buried sutures and catgut for the skin. Patient remained in bed two and a half weeks, and left the hospital at the end of three weeks. Primary union. Final result, January 15, 1895, perfectly sound.

No. 66.—H. S., male, aged fifteen years. Right oblique inguinal hernia, which had existed since three months of age. The hernia was the size of a goose-egg, and could not be satisfactorily controlled by a truss. Operation May 12, 1893. Bassini's method; kangaroo tendon was used for the buried sutures and catgut for the skin. Patient was in bed two and a half weeks. Perfect primary union followed without complications. Final result, October 2, 1894, perfectly sound.

No. 67.—H. L., male, aged seven and a half months. Right oblique inguinal hernia, congenital, *strangulated cæcum and appendix*. Operation June 1, 1893. The child had been under mechanical treatment at the Hospital for Ruptured and Crippled, but the truss had been left off on the advice of an outside physician. The hernia



had been strangulated for twenty-four hours when brought to the hospital. Chloroform was given, but the hernia could not be reduced by moderate taxis, and operation was immediately performed. The sac was found to contain the vermiform appendix and a portion of the cæcum. The appendix was of very dark color, and evidently too nearly gangrenous to make its return safe. It was removed at the base, and the wound closed by Bassini's method. Kangaroo tendon was used for the buried sutures and catgut for the skin. No drainage was employed. On the day following the operation temperature rose to 106° F., and the general condition was extremely precarious. Was treated with cold baths in a manner similar to that already described in the former case. The baths were continued for a number of days, and the temperature fell, but did not return to normal. The wound healed by perfect primary union. The weight of the child at the time of operation was only eight pounds, although seven and a half months of age. It had been suffering from marasmus, the cause of which could not be ascertained. It gradually continued to decline, and died a few weeks after the operation, having entirely recovered from the hernia.

No. 68.—R. R., female, aged eleven years. Right femoral hernia, which had existed three years. Truss had been worn for two years without any improvement. Operation June 6, 1893. The sac was ligated high up, and a purse-string suture of kangaroo tendon was used to close the crural canal. Perfect primary union; two and a half weeks in bed. Final result, October 20, 1894, perfectly sound; no truss.

No. 69.—J. P., male, aged nine years. Right oblique inguinal hernia, *cæcal*. The boy was suffering from spinal disease, and wearing a plaster jacket, which made it impossible to control the rupture with a truss. The hernia was very large. Operation June, 1893. Bassini's method; kangaroo tendon for the buried sutures and catgut for the skin. Wound healed by primary union. Final result, December 13, 1894, perfectly sound. No relapse February 1, 1895.

No. 70.—F. E., male, aged eleven years. Right oblique inguinal hernia, of several years' duration. The boy was an inmate of an orphan asylum, and it was impossible to carry out satisfactory mechanical treatment. Operation June 15, 1893. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. Wound healed by primary union. Final result, October 20, 1894, perfectly sound.

No. 71.—R. G., female, aged twenty-seven years. Right femoral hernia of two years' duration, frequently incarcerated and irreducible in part. Operation June 30, 1893. The sac was ligated high up, canal closed with purse-string kangaroo suture. Patient remained in hospital two and a half weeks. Wound healed by perfect primary union. A double sac was found connected by a small opening about one-quarter of an inch in diameter. A small concretion was found adherent to the septum, which separated the two sacs. A light truss was worn for a short time after the operation, and then discarded. Final result, June 13, 1894, perfectly sound; no truss.

No. 72.—J. A., male, aged eleven years. Right oblique inguinal hernia; truss not effective. Operation July 18, 1893. Bassini's method; kangaroo tendon used for buried sutures, catgut for the skin. No drainage. Profuse suppuration down to the aponeurotic layer occurred. The wound was freely opened to the aponeurosis, and irrigated for several days; the deeper sutures remained intact. Final result, January 11, 1895, perfectly firm. No truss since operation.

No. 73.—P. M., male, aged seventeen. Right oblique inguinal hernia of ten years' duration. Mechanical treatment tried without improvement. Operation July 21, 1893. Bassini's method; kangaroo tendon for the buried sutures. Patient remained in the hospital two and a half weeks, and in bed two weeks. Final result, January, 1895, no relapse; no truss.

No. 74.—H. S., male, aged twenty years; grocer's clerk. Right oblique inguinal hernia of two years' duration. Mechanical treatment tried, but unsatisfactory. Operation July 21, 1893. Bassini's method; kangaroo tendon for buried sutures, and catgut for the skin. Final result, January 2, 1895, perfectly sound; no truss.

No. 75.—G. P., male, aged nine years. Right oblique inguinal hernia of seven years' duration; treated at the Hospital for Ruptured and Crippled by truss for five years without improvement. Operation August, 1893. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Perfect December 11, 1894; no truss.

No. 76.—J. H. S., male, aged fifty years. Left oblique inguinal hernia, irreducible omentum, size of a fist. The patient had had a hernia for many years, but for some time it had not been satisfactorily controlled by a truss. It had been irreducible for several months, and had been treated unsuccessfully by very strong currents of electricity. The patient was very stout, and the abdominal wall



contained a large amount of adipose tissue, making the operation unusually difficult. Operation was performed February 4, 1893. The omentum was reduced, there being no firm adhesions, and the wound was closed in the usual way with kangaroo tendon for the buried sutures and catgut for the skin. No drainage was employed. Primary union occurred, with the exception of a little breakdown of the fatty tissue, which discharged through a suture opening. Patient has worn a light truss since the operation. Final result, January 22, 1895, no relapse.

No. 77.—M. B., male, aged twenty-three years. Right oblique inguinal hernia, not satisfactorily controlled by truss. Operation August 11, 1893. Bassini's method; kangaroo tendon used for buried sutures, catgut for the skin. No drainage. Perfect primary union. Patient left the hospital at the end of three weeks. Perfectly firm February 10, 1895. No truss worn since operation.

No. 78.—W. Y., male, aged eleven years. Right oblique inguinal hernia, which had existed since birth. The hernia was the size of a goose-egg, and could not be held with truss. It was complicated with a reducible hydrocele. Operation August, 1893. Bassini's method, with kangaroo tendon for the buried sutures, and catgut for the skin. No drainage. Perfect primary union. Patient remained in bed two and a half weeks. Final result, three months later, sound.

No. 79.—N. C., female, aged eight years, umbilical hernia, congenital. The hernia was about the size of a walnut, and had shown no improvement under mechanical treatment. Operation August 29, 1893. The umbilicus was excised, sac ligated and removed, peritoneum closed with catgut sutures, fascia with kangaroo tendon, which was buried, and the skin was sutured with catgut. Plaster-of-Paris dressing was applied, and the wound dressed on the ninth day. Perfect primary union followed. Final result not traced.

No. 80.—W. M., male, aged eleven years. Right oblique inguinal hernia, congenital. The boy had worn a truss since a baby without improvement. Operation August 15, 1893. Bassini's method; kangaroo tendon was used for the buried sutures, catgut for the skin. No drainage. Patient remained in bed three weeks. Wound healed by perfect primary union. Final result, December 11, 1894, perfectly sound. No truss since operation.

No. 81.—A. A., female, aged twelve years. Right femoral hernia of seven years' duration. Truss had been worn the entire time without any improvement. Hernia was about the size of an English wal-

nut. Operation September 25, 1893. The sac was ligated high up the crural canal, and was closed by means of a purse-string kangaroo suture; no drainage. Patient remained in bed three weeks. Perfect primary union followed. Final result, November 1, 1893, perfectly sound. Not traced since.

No. 82.—F. F., male, aged twenty-five years. Left oblique inguinal hernia of several years' duration. Hernia was not satisfactorily controlled by a truss. Operation September 1, 1893; Bassini's method. Kangaroo tendon was employed as usual for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Patient left the hospital at the end of three weeks. Final result, January 22, 1895, perfectly sound. No truss since operation.

No. 83.—M. T., male, aged twenty-five years, Right oblique inguinal hernia, reducible. Duration not known. Patient speaks only Italian, and a good history could not be obtained. The hernia was not well controlled by a truss. Operation October 5, 1893 Bassini's method; kangaroo tendon used for the buried sutures, catgut for the skin. Patient was in bed two and a half weeks, and left hospital at the end of three weeks. Perfect primary union occurred. Final result, January 22, 1895, perfectly firm. No truss worn since operation.

No. 84.—C. B., male, aged twenty-one years. Right oblique inguinal hernia, irreducible omentum. The hernia had existed since childhood, and the patient had never worn a truss. It had been irreducible for two months. Operation October, 1893. Bassini's method; kangaroo tendon was used for the buried sutures and catgut for the skin. No drainage was employed. The adhesions were separated from the omentum, and it was returned to the abdominal cavity. The patient remained in bed two and a half weeks, and at the end of three weeks left the hospital. Perfect primary union followed, and no truss was worn after operation. Final result not traced.

No. 85.—J. R., male, aged five years. Right oblique inguinal hernia, congenital. The hernia could not be held by a truss. Operation October 10, 1893. Bassini's method; kangaroo tendon used for the buried sutures, catgut for the skin. No drainage. Wound was dressed as usual on the eighth day, and perfect primary union followed. Truss was worn for a few months after operation, then left off. Final result, January 1, 1895, perfectly sound; no truss.

No. 86.—M. F., male, aged twelve years. Right oblique inguinal hernia of six years' duration, size of a hen's egg. Truss had been



worn the entire time without improvement. Operation October 10, 1893. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Patient remained in bed two and a half weeks, and left the hospital at the end of three. No truss was worn after operation. Final result, January 6, 1895, perfectly sound.

Nos. 87 and 88.—A. B., male, aged five years. Double oblique inguinal hernia, which had existed since the child was a few months old. A truss had been worn the entire time without improvement. Operation October 17, 1893; Bassini's method. Both sides were operated upon the same day. Kangaroo tendon was used for the buried sutures, catgut for the skin. No drainage required. The aponeurosis on the left side was sutured with catgut, the supply of kangaroo having given out. Final result, September 25, 1894, no relapse.

No. 89.—L. S., male, aged ten years. Right oblique inguinal hernia of three years' duration, not controlled by a truss. Operation November 14, 1893. Bassini's method; kangaroo tendon was used for the buried sutures and catgut for the skin. No drainage. Perfect primary union followed. No truss worn after operation. Final result, September 29, 1894, perfectly sound.

No. 90.—C. S., male, aged seven years. Double oblique inguinal hernia. The hernia had existed from infancy, but operation proved neither side to have been congenital. The hernia was very large, being the size of a goose-egg on either side. Operation November 14, 1893. Both sides were operated upon at the same time. Dr. Bull operated upon the left side, and Dr. Coley upon the right. The lower end of the sac was removed on the right side, but left *in situ* on the left. The canal was closed on both sides by Bassini's method; kangaroo tendon was used for the buried sutures. Both wounds healed by a perfect primary union. Final result, January 2, 1895, perfectly sound; no truss.

No. 91.—T. C., male, aged four and a half years. Right oblique inguinal hernia, *cæcal*. The hernia had been treated at the Hospital for Ruptured and Crippled, but no form of truss could be worn to control it. It was the size of an orange, and the canal easily admitted two fingers. Operation November 21, 1893. The hernia had existed since birth, but the operation proved that it could not have been congenital. The sac was very adherent to the tunica vaginalis, and its removal was much more difficult than usual. The wound was closed

in the usual way, with kangaroo tendon for the buried sutures and catgut for the skin. No drainage was employed. The sac was found to contain the cæcum. The wound healed by primary union, but a severe orchitis subsequently going on to suppuration developed. This, however, had no untoward effect upon the hernia wound. Final result, January 14, 1895, perfectly sound; no truss.

Nos. 92 and 93.—D. S., female, aged fourteen years. Double oblique inguinal hernia. The hernia had existed but a few months, but operation was advised on account of the difficulty of securing proper attention to the truss. Operation November 28, 1893; Bassini's method. Both sides were operated upon the same day. The time occupied in doing both operations was twenty-nine minutes. Kangaroo tendon was used for the buried sutures, catgut for the skin. Both wounds healed by primary union, with the exception of a slight superficial stitch-hole abscess on one side. Final result, December 7, 1894, perfectly sound.

No. 94.—W. S. G., male, aged nineteen years. Right oblique inguinal hernia of three months' duration, irreducible omentum. Operation December 1, 1893. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. No drainage. Omentum returned to the abdominal cavity. Patient remained in bed two weeks, hospital twenty days. Perfect primary union followed. No truss worn after operation. Patient's occupation, foundry work, necessitating heavy lifting. Final result, January 15, 1895, perfectly sound.

Nos. 95 and 96.—H. S., male, aged eight and a half years. Double oblique inguinal hernia, congenital, size of a fist on both sides. Right side proved to be *cæcal*. Neither side could be controlled by truss. Operation on the right side December 1, 1893. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union followed. Left side was operated on December 19, 1893; Bassini's method. Wound closed same as on the right side, canal closed in the usual way. Final result, June 26, 1894, perfectly sound.

No. 97.—B. R., male, aged six years. Left oblique inguinal hernia complicated with Pott's disease and hip-disease. The hernia developed while the child was wearing a plaster jacket, the pressure of which undoubtedly contributed towards producing the hernia, and could not be held by a truss. Operation December 22, 1893. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Primary union followed. Final result, December 20, 1894, no relapse; no truss.



No. 98.—I. D., male, aged seven and a half years. Right oblique inguinal hernia, which had existed since the child was five weeks old. It had never been held by a truss, and was of large size. Operation December 29, 1893. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, perfectly sound December 15, 1894; no truss.

No. 99.—T. C., male, aged twenty-seven years. Left oblique inguinal hernia, size of an egg; four weeks' duration. Truss was painful, and the patient was desirous of permanent cure. Operation January 26, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, perfectly sound January 2, 1895. No truss worn since operation.

No. 100.—G. R., male, aged three years and nine months. Left oblique inguinal hernia complicated with Pott's disease. The hernia had existed nine months, and developed soon after the patient began to wear a plaster jacket for spinal trouble. It rapidly increased in size, and could not be controlled by truss. Operation January 9, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union followed. On February 2 the patient developed tubercular meningitis, which ran a characteristic course, and he died two weeks later.

Nos. 101 and 102.—G. T., male, aged eight years. Double oblique inguinal hernia complicated with Pott's disease. The hernia on both sides had developed while wearing the plaster jacket. Operation January 30, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. The patient remained in bed the usual time, two and a half weeks. No truss since operation. Final result, September 24, 1894, perfectly sound.

No. 103.—B. R., aged six years. Right oblique inguinal hernia complicated with Pott's disease. This patient was operated upon for left oblique inguinal hernia in December, 1893. (*Vide* Case 97.) Operation on the right side February 6, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Perfect primary union. No truss worn after operation. Final result, January 11, 1895.

No. 104.—F. R., male, aged seven and a half years. Left oblique inguinal hernia. Patient had a rupture in infancy which

disappeared without treatment. One year ago the hernia reappeared, and has continued to increase in size in spite of mechanical treatment. Operation February 13, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. Patient remained in bed two and a half weeks. Perfect primary union followed. Final result, December 15, 1894, perfectly sound; no truss.

No. 105.—I. W. L., male, aged fifty-one years. Right oblique inguinal hernia, irreducible omentum. Operation at Post-Graduate Hospital, December, 1893; Bassini's method. A large mass of adherent omentum was ligated with catgut, the canal closed with kangaroo tendon for the buried sutures and catgut for the skin. No drainage. Perfect primary union. Two and a half weeks in bed. Final result, January 23, 1895, perfectly sound; has worked constantly at his trade (carpenter). Since operation no truss has been worn.

No. 106.—L. D., male, aged four years. Left oblique inguinal hernia, congenital, size of a large orange, not controlled by truss. Operation February 13, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Patient remained in bed two and a half weeks. Wound healed by perfect primary union. Final result, no relapse three months after operation.

Nos. 107 and 108.—W. L., male, aged two and a half years. Double oblique inguinal hernia, which had existed since the child was six weeks old, and neither side could be controlled by truss. Operation February 16, 1894; right side. Kangaroo tendon was used for the buried sutures, catgut for the skin. No drainage. Patient developed measles during the wound healing, which, however, did not interfere with primary union. Final result, September 28, 1894, perfectly firm. The left side was operated upon September 27, 1894. Bassini's method, with kangaroo tendon for the buried sutures. No drainage. Final result, January 21, 1895, no relapse; no truss.

No. 109.—A. B., male, aged six years. Right oblique inguinal hernia, reducible, not well controlled by truss. Operation February 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. During the operation the patient took ether very badly, and the day following the operation there were well marked signs of congestion of the lungs, associated with high temperature and rapid respiration. The dressing was removed and the wound found to be in good condition. The condition continued to become more and more serious, and death occurred on the eighth day. An autopsy showed the wound in good condition,



and nothing abnormal in the abdomen. Extensive double pneumonia was found in lungs. It was learned that the child had had measles five weeks previous to entering the hospital, and the lungs had undoubtedly not sufficiently recovered to make the administration of ether perfectly safe. Death was undoubtedly due to pneumonia caused by the anæsthetic.

Nos. 110 and 111.—C. S., male, aged nineteen years; clerk. Double oblique inguinal hernia of two years' duration. In August, 1893, both sides had been subjected to the so-called injection treatment for radical cure. No benefit had followed the treatment. Operation March 16, 1894; Bassini's method. Both sides were operated upon on the same day. The sac on both sides was found very adherent to the omentum as well as to the overlying tissues, and dissection was difficult. The sacs, however, were ligated high up and removed. The canal was closed in the usual way, using kangaroo tendon for the buried sutures and catgut for the skin. No drainage. Perfect primary union followed, and patient left the hospital at the end of three weeks. Final result, December 10, 1894, perfectly sound.

No. 112.—C. F. H., male, aged twenty-five years. Double oblique inguinal hernia; left side only operated upon. The hernia on the left side had existed since infancy, was the size of two fists, and could not be controlled by any truss. Mechanical apparatus had been worn during the entire time. Operation March 23, 1894. Bassini's method, with kangaroo tendon for the buried sutures and catgut for the skin. Patient remained in the hospital two and a half weeks. Perfect primary union followed. Not the slightest swelling of testis or cord observed. No truss worn after operation. Final result, January 2, 1895, perfectly sound.

No. 113.—L. P., male, aged nine years. Right oblique inguinal hernia, which had existed since the child was eight months old. Truss had been worn the entire time, and for the past two and a half years the child had been treated at the Hospital for Ruptured and Crippled, without any improvement. The hernia was scrotal, and the size of a large egg. Operation showed it to be congenital. Operation April 10, 1894. Bassini's method; kangaroo tendon employed for the buried sutures, catgut for skin. No drainage. Perfect primary union followed. Final result, October 6, 1894, perfectly sound.

No. 114.—K. B., female, aged twelve years. Double oblique inguinal hernia, congenital. The hernia had been observed on both

sides since infancy, and a truss had been worn the entire time without improvement. Operation April 20, 1894. Both sides operated upon at the same time, the left side by Dr. Bull and the right by Dr. Coley. Kangaroo tendon was used for all buried sutures on the right side and catgut for the skin. On the left side the kangaroo was used only for the layer underneath the cord, the aponeurosis and skin being closed with catgut. No drainage employed on either side. Primary union. Two and a half weeks in bed. Perfectly sound December 14, 1894.

No. 115.—J. K., aged six years. Left oblique inguinal hernia, which had existed since infancy. The patient had been treated three years, at the Hospital for Ruptured and Crippled, by mechanical means, without improvement. Operation April 19, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Patient remained in bed two and a half weeks, and left the hospital at the end of three weeks. Final result, December 14, 1894, sound.

No. 116.—J. D., male, aged eight and a half years. Right oblique inguinal hernia of vermiform appendix. The hernia had existed since the child was three years of age, and the child had been treated the entire time at the Hospital for Ruptured and Crippled. The hernia could be reduced, but traction on the testis caused it to reappear, showing that its contents was adherent to the sac. Probably a diagnosis of hernia of the vermiform appendix was made before the operation. Operation April 20, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. The hernia was found not to have been congenital, and the contents consisted of the vermiform appendix only. The appendix was very large, being five and a half inches in length and attached by several strong adhesions to the sac throughout its entire length. The appendix had a long mesentery almost to the tip. The adhesions were cut and tied with catgut as far as the base, and, as it was believed that the removal of the appendix would necessarily add to the risk of the operation, it was decided to return it to the abdominal cavity. The large sac was then closed with three layers of catgut sutures. The cord was transplanted as usual, and the typical Bassini operation performed. No drainage was employed. Perfect primary union occurred. Final result, December 16, 1894, perfect.

No. 117.—J. S., male, aged ten years. Left oblique inguinal hernia since infancy, but not congenital. Hernia was the size of an orange, and could not be controlled by truss. Operation March 30,



1894. Bassini's method ; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. There was some orchitis the first week, which disappeared rapidly under an ice-bag. Final result, January 1, 1895, perfectly sound. No truss since operation.

No. 118.—H. L. B., male, aged twenty-three years. Right oblique inguinal hernia, congenital. The hernia had been strangulated the day previous to the operation, but was reduced by taxis. The patient was desirous of having a radical cure, and operation was advised. Operation April 4, 1894. Bassini's method ; kangaroo tendon for buried sutures, catgut for the skin. No drainage. Perfect primary union. Not traced.

No. 119.—H. K., male, aged fourteen years. Left oblique inguinal hernia, which had existed since infancy. The truss had been worn most of the time without any improvement. Operation May 8, 1894. Bassini's method ; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, December 7, 1894, perfectly sound ; no truss.

No. 120.—G. H., male, aged forty-seven years. Left oblique inguinal hernia, irreducible omentum. The hernia had existed for a number of years, and had been irreducible for one year. Operation May, 1894. Bassini's method ; kangaroo tendon for the buried sutures, catgut for the skin. The sac was very thin and the omentum firmly adherent, so that the omentum was ligated, together with the sac, high up. No drainage was employed. The patient was stout, and the abdominal walls contained a very thick layer of fat. The wound itself healed by primary union, although there were several stitch-hole abscesses due to the breaking down of fatty tissue. These closed up very quickly, and patient was able to leave the hospital at the usual time, three weeks after the operation. He has worn no truss since. Final result, December 15, 1894, perfectly sound.

No. 121.—H. D., male, aged four years. Right oblique inguinal hernia, *cæcal*. The hernia was a relapse from a previous operation performed in December, 1893, by another surgeon at the New York Hospital. At the first operation the hernia was very large and irreducible. The cæcum was so firmly adherent to the sac that it required a long and careful dissection. The testis was removed. The wound suppurated badly, and the hernia relapsed shortly after the operation.

Second operation May 15, 1894. The hernia was the size of a

goose-egg, and consisted of an irreducible cæcum covered with cicatricial tissue, and so firmly adherent to the overlying structures that it could be separated only with the greatest difficulty. No sac whatever could be found. The cæcum was freed sufficiently high to allow it to be replaced within the abdominal cavity, and as the testis had been removed at the previous operation, the wound was closed in three layers, with kangaroo tendon for the deeper and catgut for the skin. Very slight suppuration at the lower angle of the wound occurred, otherwise there were no complications. Final result, December 11, 1894, perfectly sound.

No. 122.—F. V., male, aged eleven years. Right oblique inguinal hernia of eight years' duration. A truss had been worn the entire time without improvement. Operation May 8, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Primary union followed. The patient was up and about in two and a half weeks. Final result, December 14, 1894, perfectly sound. No truss worn since operation.

No. 123.—M. E. B., female, aged thirty-four years. Right oblique inguinal hernia of twelve years' duration. Operation May 25, 1894. The incision was made as in the Bassini operation, the sac ligated high up, and the wound closed in precisely the same manner as in the male,—in three layers. Kangaroo tendon was used for the deeper layers, catgut for the skin. No drainage. Primary union followed. The patient left the hospital at the end of two and a half weeks. No truss worn since operation. Perfectly sound December 10, 1894.

No. 124.—E. E., female, aged twenty-five years. Left oblique inguinal hernia of two years' duration. Truss had been worn the entire time without improvement. Hernia was the size of an egg. Operation May 11, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. The patient was in bed two and a half weeks, and left the hospital at the end of three weeks. Perfect primary union. Final result, December, 1894, perfectly sound; no truss.

No. 125.—J. McD., male, aged sixteen years. Right oblique inguinal hernia of two years' duration. The operation, however, showed it to have been congenital. Operation May 23, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. The patient left the hospital at the end of two weeks, perfect primary union having occurred. Final result, January 22, 1895, no relapse.



No. 126.—J. J., male, aged thirty-four years. Left direct inguinal hernia of one year's duration. The patient was anxious to do away with the truss, and desired operation. Operation May 23, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Perfect primary union. Patient left the hospital at the end of three weeks. Final result, October 15, 1894, no relapse.

No. 127.—J. W. S., male, aged twenty-three years. Left oblique inguinal hernia of several years' duration. Operation May 10, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Patient left the hospital at the end of two and a half weeks. Final result, January 1, 1895, perfectly sound.

No. 128.—L. K., female, aged thirteen years. Umbilical hernia, congenital. The hernia was about the size of a walnut, and showed no improvement under mechanical treatment. Operation June 12, 1894. The sac was excised, peritoneum sutured with catgut, the fascia with kangaroo tendon, and the skin with catgut. No drainage. Final result, December 14, 1894, perfectly sound.

No. 129.—J. O'C., male, aged nine years. Left oblique inguinal hernia, congenital, and complicated with undescended testis. Operation June 12, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. The testis was anchored in the scrotum. Slight orchitis followed the operation. Perfect primary union. Final result, December 15, 1894, sound.

No. 130.—C. S., male, aged eight years. Right oblique inguinal hernia, which had existed since infancy. A truss had been worn for three years without improvement. Operation June 23, 1894; Bassini's method. The hernia was found to be congenital. Sac was excised high up, and the redundant portion of the lower end removed, leaving just sufficient to cover the testicle. This part was closed by means of a purse-string suture of catgut. The canal was closed in the usual way, with kangaroo tendon for the buried sutures and catgut for the skin. Perfect primary union followed. Final result, January 1, 1895, perfectly sound. No truss worn since operation.

No. 131.—M. F., female, aged four years. Ventral hernia, congenital. The hernia was about the size of an English walnut, and the opening, which was three-fourths of an inch in diameter, was situated three-fourths of an inch above the umbilicus. A second smaller opening was found half an inch above and a little to the left

of the first. The patient had been treated by means of mechanical support at the Hospital for Ruptured and Crippled for eighteen months without improvement. Operation June 19, 1894. The peritoneum was sutured with catgut, the fascia with kangaroo, and the skin with catgut. Perfect primary union followed. Final result, September 29, 1894, perfect, not the slightest impulse on coughing.

No. 132.—W. K., male, aged seven and a half years. Left oblique inguinal hernia of several years' duration. Treated by mechanical means without improvement. Operation May 18, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Final result, July 15, 1894, perfectly sound.

No. 133.—A. B., female, aged four years. Right oblique inguinal hernia of two and a half years' duration. Truss had been worn two years without improvement. Operation July 6, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, October 3, 1894, perfect.

No. 134.—M. T., female, aged twenty-six years. Right oblique inguinal hernia of fourteen years' duration. No improvement had followed mechanical treatment. Operation June 27, 1894. Bassini's method; kangaroo tendon for the buried sutures and catgut for the skin. No drainage. The patient was in bed two weeks, and left the hospital at the end of three weeks. Perfect primary union followed. Final result, January 20, 1895, perfectly sound; no truss.

No. 135.—G. H., male, aged seven years. Left oblique inguinal hernia complicated with reducible hydrocele. The hernia had existed six months, but owing to the fluid keeping the canal constantly distended, mechanical treatment was of little effect. Operation July 9, 1894. Bassini's method; kangaroo tendon for the buried sutures and catgut for the skin. No drainage. Perfect primary union followed. The patient left the hospital at the end of three weeks. Sound December 15, 1894; no truss.

No. 136.—C. H. P., male, aged nineteen years. Left oblique inguinal hernia of one year's duration. Operation July 14, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union followed. Final result, January 22, 1895, perfectly sound.

No. 137.—W. K., male, aged six years. Right oblique inguinal hernia, which had existed since the child was three months of age. Truss had been worn the entire time without any improvement. The



patient's father and grandfather were both ruptured. Operation July 10, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union followed. Final result, December 13, 1894, perfectly sound.

No. 138.—R. M., male, aged ten years. Left oblique inguinal hernia of four years' duration. Mechanical treatment tried without improvement. Operation July 10, 1894. Bassini's method; kangaroo tendon for the buried sutures and catgut for the skin. No drainage. Perfect primary union. Two and a half weeks in bed. Final result, September 4, 1894, perfectly sound; no truss. Perfect January 12, 1895.

No. 139.—J. L., male, aged seven years. Right oblique inguinal hernia, which had existed since six weeks of age. The patient had been treated at the Hospital for Ruptured and Crippled for seven years without improvement. The hernia was the size of a goose-egg, and was usually down when the patient came for treatment. Operation July 20, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, December 11, 1894, perfectly sound.

No. 140.—W. H., male, aged nine years. Right oblique inguinal hernia of several years' duration. Patient had been treated with a truss for two years without any improvement. Operation July 20, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Two and a half weeks in bed. Final result, January 15, 1895, perfectly sound.

No. 141.—F. L., male, aged twelve years. Right oblique inguinal hernia. The hernia first appeared when the child was four years of age, and operation showed it to be congenital. Operation July 7, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, December 15, 1894, perfectly sound.

No. 142.—Mrs. O. C., aged sixty-two years. Large irreducible omental ventral hernia; frequent attacks of incarceration. The hernia was about the size of the fist, and was situated midway between the umbilicus and symphysis pubes. The hernia had existed for many years, but had given little trouble until two years previous to operation. During the last six months there had been several attacks of severe colicky pain in the abdomen, with nausea and vomiting. During these attacks the hernia increased considerably in size, and

was exceedingly tender. The last attack was so severe in character that operation was advised. Operation July 24, 1894. An elliptical incision was made, including the entire skin covering the tumor, and the dissection was carried on until the fascia constricting the neck of the sac was exposed. A large mass of omentum, size of fist, was found in the sac, everywhere attached to the peritoneum by old and very firm adhesions. It was impossible to separate these adhesions. The opening in the abdomen was sufficiently large to expose healthy omentum beyond the adhesions. The mass of omentum was tied off with catgut in small sections just beyond the neck of the sac. The central portion of the omentum was of almost bony hardness, due to the frequent inflammatory attacks. The wound was closed in three layers; catgut for the peritoneum, buried kangaroo tendon for the fascia, and a row of sutures of silkworm gut placed so as to include the skin and fascia. The wound was dressed on the eighth day, and found to have healed by perfect primary union. The patient had no reaction following the operation, and convalescence was uninterrupted. Final result, January 1, 1895, no relapse.

Nos. 143 and 144.—J. W., male, aged nine years. Double oblique inguinal hernia of four years' duration, complicated with double reducible hydrocele. The patient had been treated at the Hospital for Ruptured and Crippled by means of a truss for a year without any improvement. Operation August 7, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Perfect primary union. Final result, January 10, 1895, perfect.

No. 145.—H. M., male, aged seven years. Hernia of the vermiform appendix, adherent, reducible. Right oblique inguinal hernia, which had existed since infancy, but not congenital, as shown by operation. The diagnosis of an adherent vermiform appendix was made before the operation. The appendix could be definitely made out in the scrotum, and could be traced as far as its attachment to the cæcum. It could be reduced into the abdominal cavity, but traction on the testis caused it to reappear, showing it must be adherent to the sac. Operation August 14, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. On opening the sac, its contents were found to consist of the vermiform appendix alone. The appendix was three inches in length, and its tip was firmly adherent to the lower portion of the sac. The adhesions were separated, tied off with catgut, after which the appendix was reduced into the abdominal cavity. The sac was sutured with a layer of kangaroo tendon



and a skin layer of catgut sutures. The sac had no connection with the tunica vaginalis, showing that it must have been an acquired hernia. Perfect primary union. Final result, December 15, 1894, no relapse.

No. 146.—Mrs. C., aged thirty years. Irreducible umbilical hernia the size of an orange. Operation August 2, 1894. The skin as far as the base of the tumor was removed, the omentum ligated beyond the neck of the sac in small portions with catgut ligatures. The peritoneum was sutured with catgut, the fascia with buried sutures of kangaroo tendon, and the skin, including fascia, was sutured with silkworm gut. Perfect primary union followed. Final result, October 1, 1894. No relapse January 1, 1895.

No. 147.—J. M., male, aged nine years. Right oblique inguinal hernia of several years' duration. Operation August 30, 1894, Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Final result, January 1, 1895, perfectly sound.

No. 148.—R. C., male, aged fourteen years. Left oblique inguinal hernia, which had existed since infancy. The patient had been treated at the Hospital for Ruptured and Crippled by means of a truss for some years, and was considered cured. The hernia relapsed one year ago, and was the size of an egg at the time of operation. Operation August 14, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. The hernia proved to be sigmoid, and was adherent at the upper part of the sac. Slight suppuration after the tenth day. Final result, January 1, 1895, no relapse.

No. 149.—C. N., male, aged nine years. Right oblique inguinal hernia, congenital. The hernia was the size of a large orange, and a truss had been worn since two years of age without any improvement. Operation August 21, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, December, 1894, perfectly sound.

No. 150.—H. V., male, aged four years. Right oblique inguinal hernia, which had existed since infancy. Truss had been worn, but without benefit. Operation showed the hernia to have been acquired, and not congenital. Operation August 28, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. The sac was found to be occluded by old adhesions. The lower end of the sac was removed. No drainage. Perfect primary union followed. Final result, January 3, 1895, perfectly sound.

No. 151. J. R., male, aged twenty-five years. Left oblique

inguinal hernia of six months' duration. Operation September 7, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. No truss. No relapse, January 15, 1895.

No. 152.—J. McG., male, aged ten years. Right inguinal hernia of seven years' duration. He had worn a truss for six years without benefit. Operation September 5, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, January 15, 1895, no relapse.

No. 153.—L. P., male, aged five years. Right inguinal hernia of three years' duration. Operation October 1, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for skin. No drainage. Perfect primary union. Final result, January 12, 1895, perfectly sound; no truss.

No. 154.—J. P., male, aged six years. Left inguinal hernia of three years' duration. Operation October 1, 1894. Bassini's method; kangaroo tendon for the buried sutures. No drainage. Perfect primary union. Final result, January 12, 1895, perfectly sound.

No. 155.—O. A., male, aged six years. Right inguinal hernia of four years' duration. He had worn a truss four years without benefit. The hernia was found to be congenital. Operation October 9, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for skin. No drainage. Perfect primary union. Sound, January 18, 1895.

No. 156.—J. S., male, aged five and a half years. Right inguinal hernia the size of an orange. It had existed only six months, but was complicated with a large reducible hydrocele that prevented it from being controlled by a truss. Operation October 9, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for skin. No drainage. The sac was found to be partially divided by several thin partitions. Perfect primary union. No truss. No relapse, January 15, 1895.

No. 157.—P. H., aged thirteen years. Right femoral hernia size of a hen's egg, and of six years' duration. No improvement had followed constant wearing of truss. Operation October 5, 1894, Post-Graduate Hospital. High ligation of sac. Suture of crural canal with kangaroo tendon. No drainage. Final result, January 11, 1895, no relapse.



No. 158.—A. B., female, aged nine years. Right inguinal hernia of one and a half years' duration. Truss tried without benefit. Operation October 9, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for skin. No drainage. Perfect primary union. No relapse, January 22, 1895.

No. 159.—J. H., male, aged six and a half years. His father died of strangulated hernia. Right inguinal hernia of four and a half years' duration. Operation October 9, 1894. Bassini's method; kangaroo tendon for the buried sutures, and catgut for skin. No truss. Time of operation twenty minutes. Perfect primary union. No relapse, January 15, 1895.

No. 160.—H. K., female, aged nine years. Right inguinal hernia of six years' duration. No improvement has followed mechanical treatment. Operation September 27, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. Final result, January 12, 1895, no relapse.

No. 161.—C. B., female, aged four years and eight months. Right inguinal hernia, congenital. Mechanical treatment had been tried without benefit. Operation October 5, 1894, Post-Graduate Hospital. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union followed. Patient left the hospital at end of sixteen days. No relapse, January 15, 1895.

No. 162.—J. H., female, aged thirty-four. Umbilical hernia the size of an orange of ten years' duration. It was caused by a kick. It was adherent but reducible. Operation October 11, 1894. Omphalotomy with suture of wound in three layers. Kangaroo tendon was used for buried sutures, and silkworm-gut sutures were placed to include all the layers down to the peritoneum. No drainage. Perfect primary union. Patient was advised to wear belt after operation. Sound January 5, 1895.

No. 163.—L. H., male, aged twenty-one years. Left inguinal hernia of three years' duration. It was held with difficulty with truss and painful. Operation October 18, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for peritoneum. No drainage. Perfect primary union. No relapse, January 15, 1895.

No. 164.—E. K., male, aged five months. Hernia, congenital, strangulated two and a half days. Operation October 22, 1894. The hernia had been down sixty hours, and patient had been vomiting most of the time, with no passage of bowels. A tumor the size

of a goose-egg occupied the inguinal canal, and the ring was very tight. Taxis had been tried two days by the physician in charge. Bassini's method with kangaroo tendon for the buried sutures; no drainage. Perfect primary union followed.

Nos. 165 and 166.—P. H., male, aged eleven years. Double inguinal hernia, congenital, on both sides. A truss had been worn without benefit. Operation October 25, 1894, Post-Graduate Hospital; Bassini's method. Chromicized catgut was employed for the buried sutures on the left side and kangaroo tendon on the right. Both sides healed by primary union, but after the patient had been up and about for several days, two small sinuses appeared in the left cicatrix, and remained open for several weeks. No sutures came out, and the sinuses finally closed. Final result, January 22, 1895, sound.

No. 167.—H. K., male, aged thirteen years. Right inguinal hernia of six years' duration. Truss was worn the entire time without benefit. Operation October 26, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Time of operation fifteen minutes. Perfect primary union. Sound December 20, 1894; no truss.

No. 168.—W. B., male, aged twelve years. Right inguinal hernia, which had existed since infancy. Operation October 26, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for skin. Perfect primary union. Final result, January 3, 1895, sound.

No. 169.—J. McM., male, aged eleven years. Left inguinal hernia of three years' duration. He had worn a truss for two years without benefit. Operation October 26, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for skin. Perfect primary union. Final result, January 2, 1895, no relapse.

Nos. 170 and 171.—J. M., male, aged ten and a half years. Double inguinal hernia of three years' duration, and caused by a fall. Treated entire time at Hospital for Ruptured and Crippled without benefit. Operation October 26, 1894; Bassini's method. Both sides operated on same day. Time, thirty-five minutes for both operations. Kangaroo tendon was used for buried sutures, catgut for skin. No drainage. Perfect primary union. Final result, January 3, 1895, perfect.

No. 172.—M. A., male, aged four years. Right inguinal hernia, congenital, size of a goose-egg. Operation Post-Graduate Hospital, November 7, 1894. Bassini's method; kangaroo tendon for



buried sutures, catgut for skin. No drainage. Perfect primary union. No relapse, January 15, 1895.

No. 173.—L. H., female, aged twenty-one years. Right inguinal hernia of seven years' duration. Truss worn two years without benefit. Operation November 15, 1894, Post-Graduate Hospital. Bassini's method; kangaroo tendon for buried sutures, catgut for skin. No drainage. Perfect primary union followed, and patient left hospital at end of sixteen days. No relapse, January 15, 1895.

No. 174.—L. H., female, aged twenty-eight years. Right femoral hernia, strangulated fourteen hours. Hernia had existed several years, and had been strangulated once before, and reduced under ether. Taxis had been thoroughly tried under anæsthesia without effect. Operation October 29, 1894. The sac was very much thickened and of very dark color. Some fluid was found in sac. The bowel was reduced, sac ligated high up, and the crural canal closed with interrupted sutures of kangaroo tendon, without drainage. Perfect primary union followed, and patient was up and about at end of two and a half weeks. Final result, January 23, 1895, perfectly sound.

No. 175.—J. L., male, aged three and three-fourths years. Right inguinal hernia since two months old. No benefit had been derived from mechanical treatment. Operation November 8, 1894, at Post-Graduate Hospital. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. No drainage. Perfect primary union. Patient left hospital at end of two and a half weeks. Final result, perfectly sound January 22, 1895.

No. 176.—W. S., male, aged thirteen years. Right inguinal hernia complicated with reducible hydrocele. Operation November 2, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. No drainage. Perfect primary union followed. Final result, perfectly sound January 3, 1895.

No. 177.—A. W., male, aged seven and a half years. Double inguinal hernia of several years' duration. He had been treated with truss the entire time at the Hospital for Ruptured and Crippled without improvement. Operation November 16, 1894. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, perfect January 12, 1895.

No. 178.—J. McN., male, aged thirty-five years. Left inguinal

hernia of several years' duration, and size of the fist. It was not held well by truss. Operation November 15, 1894. Bassini's method, with kangaroo tendon for the buried sutures, and no drainage. The wound healed primarily, and the patient was allowed to get up at the end of sixteen days. On the seventeenth day he had pains over the upper part of cicatrix and some rise of temperature. The edges of the wound were separated for about half an inch, and a superficial collection of pus was evacuated. The wound quickly healed, and the patient left the hospital four weeks from time of operation. Final result, sound January 22, 1895.

No. 179.—C. D., male, aged twenty-six years. Right inguinal hernia of two years' duration. He had worn truss entire time, and the first year the rupture had been satisfactorily held. During the last year it had been coming down with increasing frequency, and caused considerable pain and more annoyance. Operation November 27, 1894, at Post-Graduate Hospital. Bassini's method; kangaroo tendon for buried sutures, catgut for skin. No drainage. Perfect primary union followed. The patient left the hospital at the end of three weeks. Final result, perfectly sound January 20, 1895.

No. 180.—Female, aged seven years. Right inguinal hernia of two and a half years' duration, which had not been improved by truss treatment. Operation December 1, 1894, at Post-Graduate Hospital. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Final result, perfectly sound January 22, 1895.

Nos. 181 and 182.—C. R., male, aged nine years. Double inguinal hernia of five years' duration. The boy had worn truss for four years without benefit. Operation November 30, 1894. Bassini's method on both sides; kangaroo tendon was used for the buried sutures, catgut for the skin. No drainage. Primary union. Final result, perfectly sound January 22, 1895.

No. 183.—A. P., female, aged thirty-six years. Recurrent umbilical hernia the size of a fist. First operation had been performed in January, 1894, and relapse had followed six months later. The patient was very stout. Operation January 31, 1895. The sac was very adherent to former cicatrix, and omentum was adherent to sac. The adhesions were separated or tied off with catgut and the entire sac removed. The peritoneum fascia and skin were then closed in three layers, kangaroo tendon being used for the buried sutures and silkworm gut for the skin. On account of the thick layer of fat, the



superficial portion of wound was packed with iodoform gauze (according to Gersuny's method), which was allowed to remain forty-eight hours, and on removal, the sutures of silkworm gut were tied. Primary union followed. Final result, sound January 23, 1895.

No. 184.—P. L., male, aged seven years. Right inguinal hernia since infancy. The hernia was the size of an orange and was congenital, as shown by operation. Truss had been worn constantly without benefit. Operation November 25, 1894. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Final result, perfectly sound January 3, 1895.

Nos. 185 and 186.—T. D., male, aged five and a half years. Double inguinal hernia of four and a half years' duration. Not improved by truss treatment. Operation December 7, 1894, Hospital for Ruptured and Crippled. Bassini's method, both sides; kangaroo tendon was used for buried sutures, catgut for skin. No drainage. Primary union followed. Final result, sound January 22, 1895.

No. 187.—J. M., male, aged twenty-three months. Right inguinal hernia, strangulated. No hernia had been observed until twenty-four hours previous to coming to the hospital. The supposed cause was a fall upon a chair. The hernia had been strangulated for five hours, and taxis had been thoroughly tried before the child was brought to the hospital. Taxis was again tried under chloroform preparation for operation, having first been made in case taxis failed. The ring was exceedingly tight, and none of the contents of sac could be forced back, even when thoroughly relaxed by the anæsthesia. Operation was then performed December 7, 1894. The constriction was due to the tight, small, external ring rather than the neck of the sac. The bowel was returned, and the wound closed by the Bassini method, without drainage, using kangaroo tendon for the buried sutures. The wound healed by perfect primary union, and the infant was sent home at the end of one week. Final result, perfectly sound January 22, 1895.

No. 188.—M. C., male, aged twelve years. Right inguinal hernia of two years' duration, without improvement from mechanical treatment. Operation January 11, 1895. Bassini's method; kangaroo tendon for buried sutures, catgut for the skin. No drainage. Final result, slight stitch-hole abscess occurred and the patient is under treatment January 23, 1895. Sinus healed within a few days. Perfect February 13, 1895.

No. 189.—A. J., female, aged twenty years. Right oblique

inguinal hernia, complicated with hydrocele of canal of Nuck. There was a history of tumor in groin for one year, size of a hen's egg. Never entirely reducible. Operation December 13, 1894, Post-Graduate Hospital. The hydrocele sac did not communicate with hernial sac. The hydrocele sac was excised. The hernial sac was ligated high up, and the canal closed by Bassini's method. Kangaroo tendon for buried sutures, catgut for skin. No drainage. Perfect primary union. No relapse, January 15, 1895.

No. 190.—E. W., female, aged thirty-eight years. Right inguinal hernia of one year's duration. It was of traumatic origin, and was the size of an orange. Operation December 13, 1894. Bassini's method; kangaroo tendon was used for buried sutures, catgut for the skin. No drainage. Perfect primary union followed. Final result, sound January 16, 1895.

No. 191.—S. S., female, aged twenty-two years. Right femoral hernia of several years' duration. Operation December 17, 1894. High ligation of sac and closure of crural canal with buried sutures of kangaroo tendon. Perfect primary union. Final result, perfect January 15, 1895.

No. 192.—J. S., female, aged eleven years. Left inguinal hernia of two years' duration. No improvement had followed mechanical treatment. Operation January 18, 1895, at the Hospital for Ruptured and Crippled. Bassini's method; kangaroo tendon was used for the buried sutures, catgut for the skin. No drainage. Primary union followed. Final result, sound March 1, 1895.

No. 193.—J. D., male, aged four years and three months. Double inguinal hernia, which had existed since seven weeks old. He had been treated at the Hospital for Ruptured and Crippled two and a half years without improvement. Operation, right side, January 18, 1895. Bassini's method; kangaroo tendon for the buried sutures, catgut for the skin. No drainage. Perfect primary union. Under treatment January 23, 1895.

Nos. 194 and 195.—A. C., male, aged thirty-six years. Double direct inguinal hernia of two years' duration, coming on after heavy lifting. The hernia on the left side was the size of an orange, and on the right side, of a goose-egg. Operation January, 1895, Post-Graduate Hospital; double Bassini. The ring on both sides was very large, and admitted three fingers. The herniæ were typically direct, and dissection showed the epigastric vessels plainly to the outer side of the hernial orifice. The sac occupied a position posterior to the



cord instead of the usual anterior position seen in the oblique or ordinary form of hernia. Kangaroo tendon was used for the buried sutures, and no drainage employed. Primary union followed.

No. 196.—B. B., female, aged twenty-six years. Right femoral hernia of uncertain duration, probably about one year. It had been irreducible and attended with considerable pain for one week. Examination before operation showed a small mass about the size of an English walnut in the right femoral region. It could not be reduced, and was somewhat tender. The diagnosis of irreducible omentum or of a small mass of extraperitoneal fat was made. Operation January 24, 1895, Post-Graduate Hospital. The tumor that had been felt was found to consist partly of a mass of extraperitoneal fat (common in femoral hernia) and partly of fluid in the hernial sac. The fluid and pain were doubtless due to a portion of omentum that had been temporarily imprisoned in the sac, and afterwards released. The sac was ligated high up, and the canal closed by interrupted sutures of kangaroo tendon. No drainage. Primary union followed.

No. 197.—A. G., aged five years. Right inguinal hernia, which had existed since infancy. A truss had been worn the entire time without improvement. The hernia was very large and complicated with fluid in the hernial sac. Operation February 1, 1895. Bassini's method; kangaroo tendon; no drainage; primary union.

No. 198.—W. S., male, aged eighteen years. Left inguinal hernia of several years' duration. Three weeks before he noticed a hard mass above the testis that could not be reduced into the abdomen. It was somewhat tender and increased some in size. Examination at the time of operation showed a tumor the size of an English walnut between the testis and external ring entirely distinct from testis, but intimately connected with the cord. Inasmuch as he had had a hernia for a considerable time, and associated the appearance of the tumor with overlifting, a probable diagnosis of an irreducible, inflamed omentum was made. Operation February 7, 1895, at the Post-Graduate Hospital, showed the tumor to be made up of several small cysts, with very thick walls, one-fourth to one-half inch. It had apparently originated in the lower end of the sac, and later became adherent to the cord. The cord at first seemed to pass directly through the mass, but by very slow and careful dissection it was found possible to separate them without injury to the vas or the vessels of the cord. The tumor along with the hernial sac, which was ligated beyond the internal rings, were removed, and the canal closed as usual

by the Bassini method, using kangaroo tendon for the buried sutures, and catgut for the skin suture. No drainage was employed, notwithstanding the extensive dissection. Primary union followed.

Microscopical examination of the tumor showed it to be simply cystic in character with dense walls of connective tissue. No evidence of malignant or tubercular trouble was found.

No. 199.—P. F., male, aged twenty-six years; German. Right inguinal hernia of three years' duration. Operation February 8, 1895, Post-Graduate Hospital. Bassini's method, with kangaroo tendon for the buried sutures and catgut for the skin. No drainage. Perfect primary union followed.

No. 200.—W. S., male, aged 17 years. Double oblique inguinal hernia of three years' duration; very small on right side; size of orange on left. Operation February 13, 1895. Bassini's method with kangaroo tendon for buried sutures and catgut for the skin. No drainage. Slight pneumonia following ether. Perfect primary union. Two and a half weeks in the hospital.

#### DISCUSSION.

DR. C. K. BRIDDON remarked that he thought Dr. Coley ought to be proud of his results in the operative treatment of hernia. He had not been aware that it was possible for them to be so good. He had himself operated only a few times by Bassini's method, but this small experience had led him to regard it as far superior to other methods.

Regarding hernia of the funis, he also had seen one case and one only. It was a long time ago. The child when a few days old was brought to the hospital with a hernial tumor at the umbilicus as large as his fist, and curiosity, he might say, led him to cut into it and attempt to reduce it, but the intestines were found so matted together that it was almost impossible to separate them, and the reduction was only effected by enlarging the hernial aperture. The child died within two or three days.

DR. A. G. GERSTER had performed Bassini's operation twenty-seven times, and although a sufficiently long period had not elapsed since the first operation, a little over two years ago, to justify drawing conclusions, yet he was convinced that the results would prove as good as, if not better than, those obtained from Kocher's method, which he had performed for about two years previously, or from Mac-ewen's, which he had practised for five or six years before that. He



might say, however, that he had obtained good results from all of these methods in favorable cases, but there were some cases in which all methods would fail. He believed Bassini's was based on a solid foundation, and that it would give better results in general than others which he had hitherto practised.

Regarding suture material, he had used silk, which he had found easy to handle and followed by good healing. It was not absorbable like kangaroo tendon, but he thought that was an advantage, since in his opinion the sutures aided considerably in resisting the internal pressure against that part of the walls.

He had been operating upon children for hernia a number of years. Indeed, his first operation upon a small child dated back as long ago as fourteen years, and he had operated upon eight or nine cases since. There had been no relapses. If all radical operations were done at that early date, all cases of hernia would be cured, but to maintain asepsis in children was rather difficult.

Lately, however, he had employed an expedient which had proven very useful. Iodoform gauze was placed over the wound and then painted with collodion, and over this were placed two or three layers of rather stout rubber tissue, which was made to adhere to the skin by painting with chloroform. Even urine flowing over it did not soak through and contaminate the wound.

DR. F. KAMMERER had used Bassini's method exclusively the past three years, had operated upon about fifty cases, and in none of the few which had continued under observation had there been recurrence. He had had some recurrences from methods used previously,—Macewen's and McBurney's,—but also some permanent cures. He had invariably used silk, but the arguments which Dr. Coley had brought forward would lead him to try kangaroo tendon. Although he had been most careful, sterilizing the suture material immediately before operation, yet suppuration had followed the use of silk in some cases, and in some instances fistulous tracts had formed after primary union seemed to have been assured. Owing to the stiffness of silver wire, and especially silkworm, he thought these materials were not adapted for buried suture. He had been astonished to hear that Dr. Coley had never seen fistula produced by kangaroo tendon, for it certainly remained long enough, three months, according to the doctor's statement, to produce such a result as well as any other suture material which now and then was not entirely aseptic.

The speaker could not quite agree with Dr. Gerster regarding

the value of the dressing which the latter had recommended. In his opinion the abdomen ought to be given more support than was guaranteed by a superficial dressing simply attached to the skin in the immediate vicinity of the wound.

DR. KAMMERER did not believe that the plan of opening the abdominal cavity some distance from an incarcerated and gangrenous hernia was to be condemned in each and every case. He could understand the propriety of introducing some gauze intraperitoneally about the constricting ring to prevent an infection of the peritoneal cavity before cutting through the constriction. Even in relieving the latter by dissection from without it can occur that a gangrenous furrow in the intestine will give way at that very moment, and infectious material will escape into the peritoneal cavity, if some means have not been taken to arrest it. This he considered not merely a theoretical speculation.

DR. BRIDDON remarked with regard to silver wire, that he had used it in several cases of ventral hernia, always with satisfaction. He was not aware that protrusion had taken place in any of the cases, and the sutures had never caused any trouble. On examining the wound after all plastic material had become absorbed one could hardly feel the sutures. He placed them very close together. The same result was true in his experience with silkworm gut. He could not understand what advantages kangaroo tendon possessed over silkworm gut for buried sutures. One could be made as aseptic as the other, and in many cases non-absorption was a decided advantage. He would, however, try kangaroo tendon.

DR. ROBERT ABBE thought Dr. Coley's mortality record most remarkable,—only one death in 199 cases, and that due to pneumonia, practically reducing it to *nil*. In this regard his own experience had not been so favorable, but it covered a period during which various methods had been employed, and when aseptic work had not been as perfect as to-day. He had probably operated 175 or 200 times, the number of cases when he had last looked over his records having been 150. He had done Bassini's operation only a few times. He still liked Macewen's, and believed that with the use of kangaroo tendon it would give as good results as Bassini's. Heretofore it had been faulty because performed with heavy catgut, which certainly was not an enduring suture. The kangaroo tendon was very stable, it could be tied very tightly, it buried readily, and gave perfect coaptation,—facts which were necessary to successful operative treatment.



DR. COLEY said he had admitted in his paper that silk could be buried without causing any trouble as a rule, but in a certain number of cases it did cause sinuses. The records of the cases observed at the Hospital for Ruptured and Crippled was sufficient proof of this.

Regarding the dressing employed by Dr. Gerster, he thought it objectionable in that it did not exert any pressure over the wound. He was himself particular about putting on a spica dressing, which exerted firm pressure. There was less danger under such circumstances of accumulations of blood and serum, which would invite suppuration. In six cases complicated by Pott's disease, also in the five cases of strangulated hernia in infants under two years, the dressings were constantly soiled by the urine, yet there was primary union in every case.

Dr. Coley had had no case of sinus following the use of kangaroo tendon. Suppuration had occurred in seven instances, but it was during immediate wound-healing, and not as a sinus developing some time after operation, as was the case with silk. He did not agree with Dr. Briddon, that it was necessary for the suture to remain two or three years. If one obtained primary union, two or three months would do just as well. Every strain put upon the abdomen must cause tension, and the silk or silver wire, if used as suture material, would cut through the tissues, until such tension was overcome.